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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,599	03/17/2004	Didier Mortgat	250544US41	4179

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EXAMINER

HANAN, DEVIN J

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary	Application No.	Applicant(s)	
	10/801,599	MORTGAT, DIDIER	
	Examiner	Art Unit	
	Devin Hanan	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/17/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

The drawings are objected to because of the inconsistent vane arrangement between figure 1 and figure 3. Figure 1 shows the trailing edge next to the pressure side, conversely, figure 3 shows the trailing edge next to the suction side. Figure 3 is consistent with claim 1, having "an aerodynamic throat between the trailing edge of one injector and the suction side wall of an immediately adjacent injector". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the turbine rotor located aft of the injectors, as claimed in claim 1, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

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of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Length of abstract exceeds the 150 word limit. Correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 claims "the injector presents reduced height over a determined length." The term "determined" does not have an accepted meaning corresponding to a value or range of actual length of the reduced height portion. Correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-4 and 6, as far as it is definite, are rejected under 35 U.S.C. 102(b) as being anticipated by Hagle et al. (U.S. Patent 5,207,558).

Hagle et al. discloses a device for injecting cooling air into a turbomachine turbine rotor, the device comprising a plurality of injectors (16) distributed regularly around a longitudinal axis of the turbomachine and mounted between an inner shroud and an outer shroud (figure 1), each injector of aerodynamic profile comprising,

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between a leading edge and a trailing edge, a suction side wall and a pressure side wall (figure 2), the cooling air passing through the injectors being ejected towards through orifices in the turbine rotor via a flow section forming an aerodynamic throat between the trailing edge of one injector and the suction side wall of an immediately adjacent injector, wherein, in order to modify the section of the aerodynamic throat as a function of the temperature of the cooling air passing through the injectors, each injector comprises a bimetallic structure (col. 1 lines 55-57) with a first metal (30) material forming a major portion of the structure of the injector and having a first coefficient of thermal expansion, and a second metal (26) material forming a complementary portion of the structure in the vicinity of the suction side wall meeting the trailing edge of the injector, and having a second coefficient of thermal expansion that is smaller than the first (col. 4 lines 43-60).

Regarding claims 3 and 4, Hagle et al. discloses that the first and second metals can be made of nickel based alloys (col. 4 lines 27-30).

Regarding claim 6, as far as it is definite, Hagle et al. inherently discloses the height of the blade is reduced at the trailing edge; otherwise the trailing portion (24) would be impeded from movement by friction.

Claims 1-4 and 6, as far as it is definite, are rejected under 35 U.S.C. 102(b) as being anticipated by Snyder (U.S. Patent 4,619,50).

Snyder discloses a device for injecting cooling air into a turbomachine turbine rotor, the device comprising a plurality of injectors (10) distributed regularly around a

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longitudinal axis of the turbomachine and mounted between an inner shroud and an outer shroud (figure 2), each injector of aerodynamic profile comprising, between a leading edge and a trailing edge, a suction side wall (28) and a pressure side wall (26, figure 2), the cooling air passing through the injectors being ejected towards through orifices in the turbine rotor via a flow section forming an aerodynamic throat between the trailing edge of one injector and the suction side wall of an immediately adjacent injector, wherein, in order to modify the section of the aerodynamic throat as a function of the temperature of the cooling air passing through the injectors, each injector comprises a bimetallic structure (col. 5 lines 48-58) with a first metal (32) material forming a major portion of the structure of the injector and having a first coefficient of thermal expansion, and a second metal (34) material forming a complementary portion of the structure in the vicinity of the suction side wall meeting the trailing edge of the injector, and having a second coefficient of thermal expansion that is smaller than the first (col. 6 lines 48-63, As seen in figure 4, when the blade heats up it bends from the original state, phantom lines, to the heated state, solid lines. To achieve this bending the pressure side (26) must have a thermal expansion coefficient higher than the suction side (28)).

Regarding claim 2, Snyder discloses the first and second material are assembled by welding (col. 5 lines 63-68).

Regarding claims 3 and 4 Snyder discloses that the first and second metals can be made of nickel based alloys (col. 8 lines 46-55).

Regarding claim 6, as far as it is definite, Snyder inherently discloses the height of the blade is reduced at the trailing edge; otherwise the trailing portion (24) would be impeded from movement by friction.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snyder in view of Ortolano (U.S. Patent 5,133,643).

Snyder discloses that the injectors are attached to the shroud, but does not disclose the attachment method is a bolted connection.

However, Ortolano teaches of using bolts (30) for the purpose of attaching the blade sections to the shroud and other portions, such as fingers (col. 5 lines 44-52).

Since Ortolano and Snyder are from the same field of endeavor, controlling the airflow in a turbine, Ortolano would have been recognized in the pertinent prior art of Snyder. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the blades of Snyder with the bolts of Ortolano for the purpose of attaching the blades to the shroud and other portions, such as fingers (col. 5 lines 44-52).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devin Hanan whose telephone number is 571-272-6089. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on 571-272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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